

Is this a joke? Metalinguistic reflections on verbal jokes during the school years

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ABSTRACT

EN The ability to produce and comprehend multiple meanings in words and expressions, such as those included in linguistic humor, develops during the school years and is directly related to the development of metalinguistic reflection. The purpose of this study is to analyze metalinguistic reflections that children and adolescents present on different types of verbal jokes. Participants were 42 children and adolescents in second, fifth, and eighth grades (14 participants per group) from Querétaro, México. They were presented with four verbal jokes (two lexical and two syntactical) and four non-jokes. Participants were asked to determine whether each text was a joke or not and to explain their reasoning. Results revealed differences by school grade in the students' ability to distinguish jokes from non-jokes and in the type and quantity of their reflections. Moreover, lexical jokes were easier to understand and analyze than syntactical jokes, especially for younger participants.

Key words: LANGUAGE DEVELOPMENT, SCHOOL, METALINGUISTIC REFLECTION, HUMOR, JOKES

ES La capacidad de producir y entender los múltiples significados de palabras y expresiones, tales como los que encierra el humor lingüístico, se desarrolla durante los años de escolarización y presenta, a su vez, una relación directa con el desarrollo de la reflexión metalingüística. El propósito de este estudio es analizar las reflexiones metalingüísticas de niños y adolescentes ante distintos tipos de chistes verbales. Los participantes fueron un conjunto de 42 niños y adolescentes que cursaban 2º, 5º y 8º grado (14 participantes por grupo) en Querétaro, México. Se presentó a los sujetos del estudio un total de cuatro chistes verbales (dos léxicos y dos sintácticos), solicitándoles que determinaran si cada texto constituía un chiste o no, y se les pidió que motivaran sus respuestas. Los resultados mostraron diferencias entre el alumnado de los diferentes grados en cuanto a su capacidad de discernir si se encontraban ante un chiste o no, así como al tipo y el número de sus reflexiones. Además, los chistes léxicos fueron más fáciles de entender y analizar que los chistes sintácticos, especialmente para los participantes más jóvenes.

Palabras clave: DESARROLLO LINGÜÍSTICO, ESCUELA, REFLEXIÓN METALINGÜÍSTICA, HUMOR, CHISTES

IT La capacità di produrre e comprendere i molteplici significati di parole ed espressioni, come quelli presenti nel comico linguistico, si sviluppa durante il periodo scolastico ed è correlata in maniera diretta allo sviluppo della riflessione metalinguistica. Questo studio si propone di analizzare la riflessione metalinguistica operata da bambini e adolescenti su diversi tipi di comico verbale. I 42 bambini e adolescenti oggetto dello studio, divisi in gruppi di 14 partecipanti, frequentano le classi seconda e quinta della scuola primaria e la terza media, e provengono da Querétaro, Messico. Messi di fronte a quattro barzellette (due lessicali e due sintattiche) e quattro non-barzellette, è stato chiesto loro di determinare se i testi sottoposti fossero comici oppure no e di spiegare il ragionamento che li ha portati a formulare ogni valutazione. Lo studio ha messo in evidenza uno scarto a seconda della classe scolastica nella capacità degli studenti di distinguere le barzellette dalle non-barzellette nel tipo e quantità delle loro riflessioni. Inoltre, le barzellette lessicali sono risultate più semplici da capire e analizzare rispetto a quelle sintattiche, soprattutto per i partecipanti più giovani.

Parole chiave: SVILUPPO LINGUISTICO, SCUOLA, RIFLESSIONE METALINGUISTICA, COMICO, BARZELLETTE

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1. Introduction

1.1. Language development in school

In recent years, it has been recognized that language development is an ongoing process that continues throughout the school years and well into adolescence (Barriga, 2002; Hess, 2010; Hoff, 2014; Nippold, 2007). Several studies have shown that while children acquire the basic skills of their language system during childhood, they still have much to develop in order to become proficient speakers (Berman, 2004). A very important ability that children acquire during the school years and adolescence is the comprehension and production of multiple meanings for words that will allow them to interpret linguistic humor (Hess, 2014). In this paper, we argue that children's and adolescents' ability to reflect on humor, and specifically on jokes, can provide information on the mechanisms involved in later language development.

Later language development is characterized by significant achievements at all linguistic levels (Nippold, 2007). Regarding phonology, it appears that the articulation of polysyllabic words is strengthened and that the child adapts to the accent of the community (Nippold, 2007). In addition, there is a development of phonological awareness (Gombert, 1992; Hoff, 2014). In terms of morphology, during the school years new compound words via prefixes and suffixes and the use of multiple morphemes become more complex and there is presence of new derivative morphemes (Nippold & Sun, 2008; Ravid, 2004). This is because these new forms correspond to morphologically complex words that are part of the system of written language that children have access to during their reading and writing experiences at school (Nippold, 2007; Snow & Uccelli, 2009).

Regarding syntactic development, Tolchinsky (2004) recognized that by the age of five, children produce longer sentences, acquire a greater repertoire of syntactic structures, and increase their ability to comprehend and produce grammatical structures, which they had not used before. In turn, sentence complexity, coordination, and subordination are syntactical features that develop in later childhood (Barriga, 2002; Berman & Ravid, 2010). For this reason, children must make adjustments in context, variation of style, and register in order to meet a new set of discourse functions (Berman, 2004; Tolchinsky, Rosado, Aparici, & Perera, 2005).

Additionally, during the school years important changes take place in pragmatics. Children must be more attentive to conversational interactions with peers and adults outside the family, and therefore create new communicative strategies (Barriga, 2002; Ely, 1997; Ninio & Snow, 1996). It is during the school years that children achieve the consolidation of conversational skills, such as turn taking, dialogue, and discourse (Blum-Kulka, 2004). This implies that children learn to take into account the mental state of the interlocutor (Theory of Mind) to enter into a continuous interplay with their beliefs, desires, intentions, and emotions to be able to influence their actions (Miller, 2006; Tolchinsky, 2004; Tomasello & Carpenter, 2007).

Another linguistic level that undergoes an important evolution during later language development is discourse. The child has to develop a set of skills to select the appropriate linguistic forms according to a specific textual genre (narration, description, or argumentation) in order to take into account the information shared with the listener. Additionally, the child must be able to organize discourse that is relevant and appropriate to a given communicative situation and develop a new semantic and syntactic framework that meets the organization of coherent and cohesive discourse (Alvarado, Calderón, Hess & Vernon, 2011; Hess & González, 2013; Hickmann, 2003; Tolchinsky, 2004).

Finally, regarding semantics, during the school years different levels of linguistic progress have been observed. New types of words appear as a result of children's personal interests and of their access to academic language in school settings (Jisa, 2004; Schleppegrell, 2004; Zwiers, 2008). In turn, the lexicon ceases to be concrete with specific functions and becomes more general and abstract (Barriga, 2002). The child is able to make new inferences, assumptions, abstractions, and deductions that will lead to the generation of new meanings for words such as those included in metaphors, idioms, irony (Hoff, 2014; Nippold, 2007; Spector, 1996; Tolchinsky, 2004), and, specifically, in linguistic humor.

During the last decade, the study of the development of new meanings for words has become an important topic in psycholinguistic research. Frequently, children and adolescents encounter linguistic expressions where words may have more than one meaning. The comprehension of these new meanings of words is a very important aspect of language development, because it has been associated with academic achievement, leadership, and creativity (Calderón, 2012; Loukusa & Leinonen, 2008; Nippold, 2007). Individuals who do not comprehend or use multiple meanings of words appropriately may have difficulties in

the comprehension of some academic concepts (Milosky, 1994). Additionally, the use of many meanings for words is a necessary and highly valued ability for adequate social functioning (Hoicka, 2014).

The interpretation of several meanings in words implies the development of many linguistic, cognitive, and social abilities. One of the most important ones is to realize that a message may contain or not the intention of the speaker, that is, that words do not always represent intentions (Beal, 1988). To be able to distinguish between words and intention, or *what is said* and *what is meant* (Bonitatibus, 1988), individuals have to be aware that their own thoughts, beliefs, and knowledge are not the same as the ones of the interlocutor (Bosco, Angeleri, Colle, Sacco, & Bara, 2013; Hoicka, 2014; Pexman, 2008). Only then, they are able to comprehend that an expression can be used by a speaker in order to convey more than one meaning and that linguistic expressions may have more than one interpretation.

The ability to produce and comprehend multiple meanings in words and expressions develops during the school years for several reasons. In school settings children encounter new linguistic forms and functions mainly due to the exposure to more formal and demanding oral language in the classroom (Hoff, 2014; Montes, 2011) and to written language (Barriga, 2002; Nippold, 2007). In addition, they start to use language games, riddles, and jokes that imply phonological, lexical, or syntactical ambiguity (Crystal, 1996; Hess, 2014; Martin, 2007). Finally, the development of new language meanings has been directly related to the development of metalinguistic reflection (Gombert, 1992; Hess, 2010; Howard, 2009; Nippold, 2007), as will be explained below.

1.2. Metalinguistic reflection

It is known that during early language development (before the age of 6), children have difficulty in thinking and talking about their own and others' language expressions. This is due to the fact that young children are not able to use language in order to talk about language independently of its communicative function (Gombert, 1992; Hess, 2010; Kemper & Vernooy, 1993). Nevertheless, at about age 6, children start to reflect on the nature and functions of language in order to adjust, modify, and correct language in diverse communicative contexts (Ashkenazy & Ravid, 1998; Barriga, 2002; Hess, 2010; Nippold, 2004; Smith-Cairns, 1996) and to play with language in different ways, such as with rhymes, jokes, and metaphors (Apte, 1985; Cazden, 1976; Crystal, 1996). All these new experiences contribute to the development of children's metalinguistic reflection. According to Gombert (1992), metalinguistic reflection appears when children are able to distinguish language form from its content. Only then, they can reflect on language as an entity in itself and intentionally monitor and plan linguistic processing in all linguistic levels (phonology, morphology, syntax, semantics, pragmatics, discourse) (Chaney, 1994; Gombert, 1992; Hess, 2010). During the pre-school years, children have an intuitive knowledge about language (Gombert, 1992; Montes, 1994), but during the school years they will develop a conscious reflection about the linguistic system and will be able to process linguistic information independently of the communicative context (Gombert, 1992; Menyuk, 1988). As we stated before, this study will be concerned with metalinguistic reflection on humor and specifically on jokes.

1.3. Humor in later language development

Although humor is related to the appropriation of effective communicative, social, and linguistic competence (Attardo, 2008; Carrell, 1997; Raskin, 1985), the acquisition of humor during later language development has been a somewhat neglected topic in psycholinguistic research.² In this study, we argue that humor development can provide important insights on later language development because comprehension and production of humorous events follow a long developmental path (Ashkenazy & Ravid, 1998; Bernstein, 1986; Ezell & Jarzynka 1996; Hoicka, 2014; McGhee, 1971a, 1971b; Shultz & Horibe, 1974) and involve cognitive, linguistic, metalinguistic, and social abilities (Ashkenazy & Ravid, 1998; Bergen, 2003; Hess, 2014; Martin 2007; Semrud-Clikeman & Glass, 2008; Tamashiro, 1979; Tennison, 1993).

There are several authors who propose stages in the development of humor (see, for example, McGhee, 1971a, 1971b, 1979). Regarding humor development during the school years, studies show that around age 6 children will begin to solve implicit incongruities (Bariaud, 1989; Ezell & Jarzinka, 1996; Falkenberg, 2010). Between ages 7 and 8 they will start to comprehend and produce jokes and riddles that involve phonological, lexical, or syntactical ambiguity (Apte, 1985; Bergen, 2009; Bernstein, 1986; Nippold

² For some exceptions see Ashkenazy & Ravid (1998), Bernstein (1986), Ezell & Jarzinka (1996), Hoicka (2014), Klein (2003), Klein & Kuiper (2006), Martin (2007), Masten (1986, 1989), McGhee (1971a, 1971b, 1979), McGhee & Panoutsopoulou (1990), Semrud-Clikeman & Glass (2008), Shultz (1974), Spector (1996), and Tennison (1993).

2007; Shultz, 1974); they will also start to assess the social models and conventions of their culture in order to understand and produce humor (Bariaud, 1983, 1989; Feuerhahn, 1993; Hoicka, 2014; Masten, 1986; Southam, 2005). Furthermore, during late childhood individuals become able to give higher quality explanations about humor and present better linguistic styles and organization in their humorous productions (Ashkenazy & Ravid 1998; Spector, 1996). Finally, during adolescence, they will favor more sophisticated forms of humor that involve abstract themes and higher cognitive challenges, such as irony. Humor presented in the form of occurrences or spontaneous anecdotes will also be widely enjoyed by young people, especially when they emphasize social conflict or are of sexual nature (Klein & Kuiper, 2006; Koller, 1988; Nippold 2007; Tennison, 1993).

1.4. Jokes

Humor has many manifestations and the classification into different types varies according to theoretical perspectives. From a psycholinguistic point of view, Martin (2007) believes that humor can be divided into three broad categories: *spontaneous humor*, *accidental humor*, and *jokes*. As jokes represent one of the most common types of humor in social interaction, they will be central to this study.

Jokes are short anecdotes that present a specific situation that opposes—via the establishment of an incongruity—another alternative situation, all of which creates a humorous effect (Attardo, 2005; Attardo & Chabanne, 1992; Martin, 2007). Although there are many ways to organize a text as a joke (see, for example, Davies, 2004 and Raskin, 1985), most authors agree on the fact that prototypical jokes consist of three elements: setting, dialogue, and punch line (Attardo & Chabanne, 1992; Chafe, 2007; Martin, 2007). The *setting* is the initial part of the joke except for the last statement, and serves to create certain expectations about how the situation should be interpreted. The *dialogue* is short, generally between two characters, and lies immediately before the punch line. The *punch line* comes at the end of the joke and will be the element that suddenly changes the meaning, leading the individual to a second reading because of the perceived incongruity.

There are many taxonomies of jokes (see Attardo, 1994). In the literature on language acquisition, various distinctions between jokes have been made under semantic (Fowles & Glanz, 1977; Shultz & Horibe, 1974) and pragmatic perspectives (Bernstein, 1986). For the purpose of this research, the classification proposed by Attardo, Attardo, Baltes and Petray (1994), who distinguish two kinds of jokes (verbal and referential), will be used. This study will center its attention on verbal jokes (for a similar study with referential jokes see Hess, 2014).

Verbal jokes are jokes that present a lexical marker (generally a word or a syntactic structure) that entails at least two readings. In general, verbal jokes can be of two types: those based on ambiguity and those based on alliteration. As these latter ones are very rare (2%) (Attardo et al., 1994), this study will focus on verbal jokes due to ambiguity. According to Attardo et al. (1994), verbal jokes that are based on ambiguity can be classified into two types: lexical (93%) and syntactical (5%). Lexical jokes are based on a semantic ambiguity of a word or linguistic expression. See Example 1:

- 1) Un pececito le pregunta a otro pececito:

-¿Qué hace tu papá?

-Pues, nada.

[A little fish asks another little fish: What does your dad do? Well, nothing/he swims]

In this joke, the Spanish word *nada* has two readings: *nothing* and *swim*. To adequately interpret the joke, it is necessary to see the word *nada* as a lexical marker for both meanings. In syntactical jokes, on the contrary, ambiguity is based on the syntactic structure of a linguistic expression. In order to interpret the ambiguity it is necessary to decompose the syntactic expression and rearrange it. See Example 2:

- 2) Una señora entra en una tienda elegante y pregunta:

-¿Tiene bolsas de cocodrilo?

-Depende, señora. Dígame, ¿cómo le gustan a su cocodrilo?

[A woman enters an elegant store and asks: Do you have bags made of/for crocodile? It depends, ma'am. Tell me, how does your crocodile like them?]

Additionally, in prototypical cases, in order to make the ambiguous interpretation possible, verbal jokes include a *connector* and a *disjunctors* (Attardo et al., 1994). The *connector* is any segment of the text that can be assigned to two different meanings (as the word *nada* in Example 1 and the phrase *cómo le gustan a su cocodrilo* in Example 2); the *disjunctors* is a part of the text that plays with the ambiguous element causing the switch from one interpretation to the other (*nada* in Example 1 and *cómo le gustan a su cocodrilo* in Example 2). Verbal jokes can vary due to the position of connector and disjunctors. In most cases, the connector and the disjunctors are in different segments of the text (as in Example 2), but in some cases connector and disjunctors are in the same position (as in Example 1).

Under the previous assumptions, the purpose of this study was to analyze metalinguistic reflections that children and adolescents present on different types of verbal jokes. The underlying hypotheses were:

- 1) Differences between age groups in the ability to reflect on verbal jokes will exist.
- 2) Lexical verbal jokes will be easier to interpret and reflect on than syntactical verbal jokes because they are more frequent and less complex jokes.
- 3) Distance between the connector and disjunctors in the joke will play a role in its correct interpretation. Jokes with the connector/disjunctors in the same segment of the text will be easier to interpret and analyze than jokes with the connector/disjunctors in different segments of the text.

2. Method

2.1. Participants

Forty-two children and adolescents between the ages of 7 and 15 participated in the study. They were all students from a school in Querétaro, México, in second, fifth, and eighth grades. Mean ages for the groups were 8.4 (years; months, range = 8-9 years), 11.2 (range = 10-11 years) and 14.4 (range = 13-15 years). Fourteen children were chosen for each grade (seven boys and seven girls). All children came from middle- to upper-middle-class schools. In order to control the variable of previously knowing or not the jokes, only participants who stated that they were not familiar with the jokes presented in the study were included.

2.2. Materials and procedures

Each participant was presented a total of eight texts: four jokes and four non-jokes (see Tables A1 and A2 in Appendix A). Jokes for the instrument were selected in order to have one joke for each of the following types: a) lexical joke with a connector and disjunctors in the same position; b) lexical joke with a connector and disjunctors in different position; c) syntactical joke with a connector and disjunctors in the same position; d) syntactical joke with a connector and disjunctors in different position. Non-jokes were original jokes that were modified by eliminating the disjunctors and therefore were literal, factual, and serious texts. The intention was for all texts to have similar length and to be accessible for all ages in terms of topic and language. Therefore, number of words and syntactic complexity were controlled and a preliminary pilot test was carried out.

The instrument was introduced in oral and written form. Texts were previously recorded for audio presentation and all participants additionally received the written versions of the jokes so they could return to the text to analyze it in greater detail. Jokes were presented in random order and participants listened to the eight texts one at a time. In order to assess the familiarity with the jokes, after each text, participants were asked whether they knew the joke before. If they said *no*, they were asked questions by way of a guided interview in order to see if they thought it was a joke or not and why. During the interview, participants were asked several questions in order to encourage them to state as many metalinguistic reflections on the jokes and non-jokes as possible (Examples: *Why is it a joke? What makes it a joke? How do you know? What part of the text made you think it was a joke? Was it a good joke? Why? What would you change in the text in order to make it a better joke?*). Before starting the interview, participants were asked if they wanted to hear or read the joke again, allowing them to hear/read the joke as many times as they needed. All interviews were performed by one graduate student of a psychology and education program who was previously trained for this purpose.

Participants' responses were analyzed in two ways. First, correct interpretations of the texts (jokes as jokes and non-jokes as non-jokes) were scored. Second, all responses were broadly categorized into three non-exclusive categories: *content*, *form*, and *impact* (see Appendix B for more details on the categories and subcategories). Responses of *content* included those in which participants reflected on aspects of the content

of the text: plot, events, relationship between characters, etc. (Examples: *It's not a joke because the woman didn't explain to the salesman why she wanted to buy the purse for her crocodile; It's a bad joke because they [participants in the joke] enter an illegal store; It's not a joke because crocodiles can't use purses*). Responses of *form* were reflections on the form of the text, independently of the content, such as reflections on text length, words, and structure (Examples: *It's not a joke because the dialogue is not coherent; I know it's a joke because the word has two meanings; It's a joke because it is short*). Responses of *impact* included reflections on the impact of the joke on a potential recipient (Examples: *It's a good joke because it makes people laugh; It's a good joke for children because they are always telling jokes like this one; For me, it's a joke because it made me laugh*).

3. Results

3.1. Overall results

Overall results include the responses that participants gave to the question "Is it or isn't it a joke?." Many of the participants answered *yes* or *no*, although their responses showed that they had not necessarily understood the jokes. A complete understanding was only considered when in the participants' responses it was clear that they were able to see the ambiguity in the jokes (Example: *I know it's a joke because he wears the same shoe size standing and sitting; It's funny because he says "nothing" and "swim"*). Therefore, for this first analysis only answers where it was evident that the children and adolescents had understood the joke were scored. Figure 1 shows these results.

As shown in Figure 1, there is an important increase in the number of correct answers in relation to school grade in both types of text (jokes and non-jokes). An analysis of students' t-distribution showed significant differences for jokes (second vs. fifth grade: $t = -2.973$, $df = 26$, $p < .01$; second vs. eighth grade: $t = -8.062$, $df = 26$, $p < .000$; fifth vs. eighth grade $t = -3.551$, $df = 26$, $p < .01$) and non-jokes (second vs. fifth grade: $t = -2.696$, $df = 26$, $p < .05$; second vs. eighth grade $t = -6.866$, $df = 26$, $p < .000$; fifth vs. eighth grade $t = -2.530$, $df = 26$, $p < .05$).

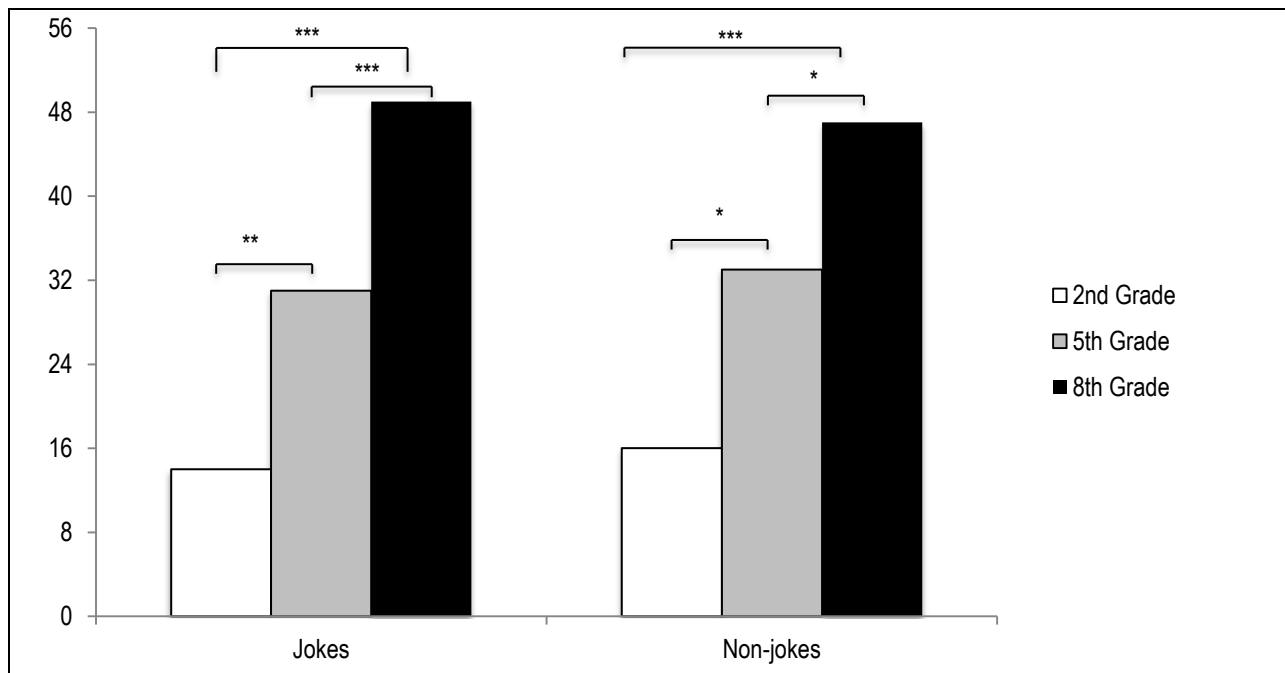


Figure 1. Correct interpretation of jokes and non-jokes by grade. Numbers represent number of correct responses to the question "Is it or isn't it a joke?" by all participants per grade for jokes and non-jokes. Total of possible correct answers per grade for each text type is 56.

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

3.2. Lexical vs. syntactical jokes

In the second part of the analysis we explored if there were differences in students' ability to interpret jokes due to their type (lexical vs. syntactical). Results of this analysis are shown in Figure 2.

As can be seen in Figure 2, participants were better at correctly interpreting lexical jokes than syntactical jokes, although differences between lexical and syntactical jokes were only significant for fifth grade ($t = 2.188$, $df = 13$, $p < 0.05$). An analysis by grade showed a significant increase for lexical jokes in second vs. eighth grade ($t = 5.871$, $df = 26$, $p < .000$) and fifth vs. eighth grade ($t = -2.333$, $df = 26$, $p < .05$). In the case of syntactical jokes, there were significant differences between the three grades (second vs. fifth: $t = 2.553$, $df = 27$, $p < .05$; second vs. eighth: $t = -6.026$, $df = 26$, $p < .000$; fifth vs. eighth: $t = -2.855$, $df = 26$, $p < .01$).

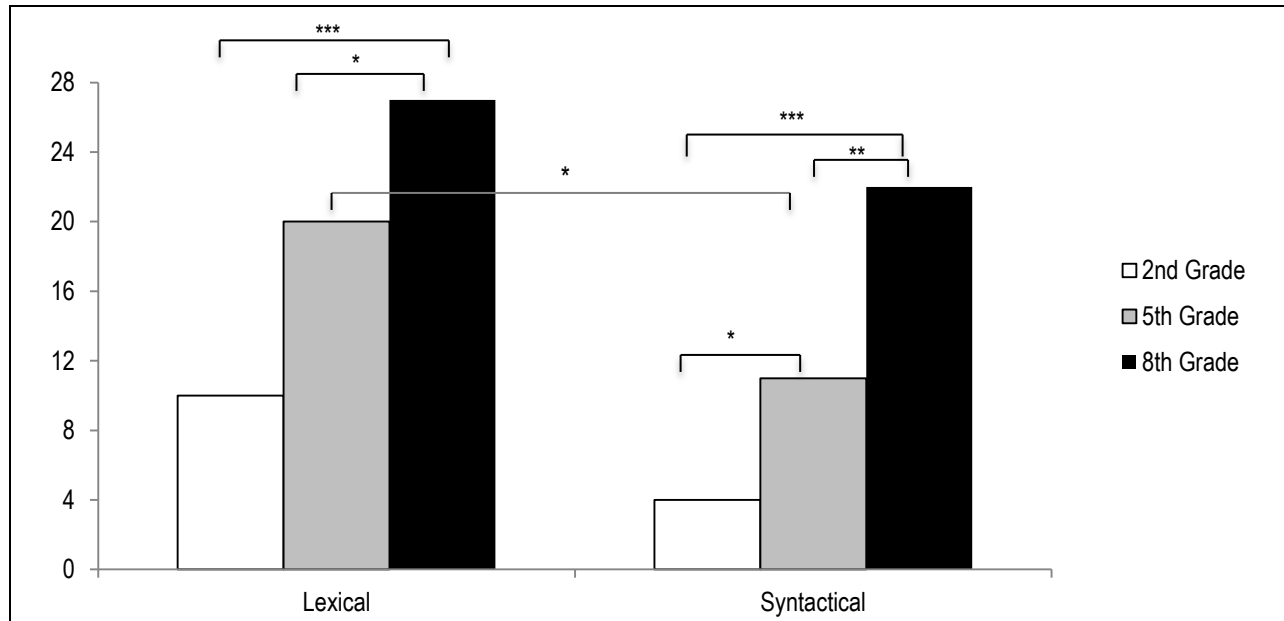


Figure 2. Correct interpretation of jokes by type of joke (lexical or syntactical) for each grade. Numbers represent numbers of jokes interpreted correctly. Total of possible correct answers per grade is 28.

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

3.3. Position of connector and disjunctive

In the third part of the analysis we examined whether the position of a connector and disjunctive (same or different) had an impact on the participants' ability to reflect on jokes. As can be seen in Figure 3, there is an increase in students' ability to reflect on jokes with both types of positions during the school years. In jokes with a connector and disjunctive in the same position, differences in the number of correct interpretations of jokes were significant for grades second vs. eighth ($t = -3.942$, $df = 26$, $p < .01$) and fifth vs. eighth ($t = -2.222$, $df = 26$, $p < .05$). In jokes where a connector and disjunctive were in different positions, there was a significant increase in the number of correct interpretations of jokes between grades second and fifth ($t = -2.924$, $df = 26$, $p < .01$) and between fifth and eighth ($t = -3.294$, $df = 26$, $p = .01$). A comparison between jokes with same vs. different position showed significant differences only for participants in second grade ($t = 2.104$, $df = 13$, $p < .05$) in favor of jokes with a connector and disjunctive in the same position, even though this value was very close to not being of statistical significance.

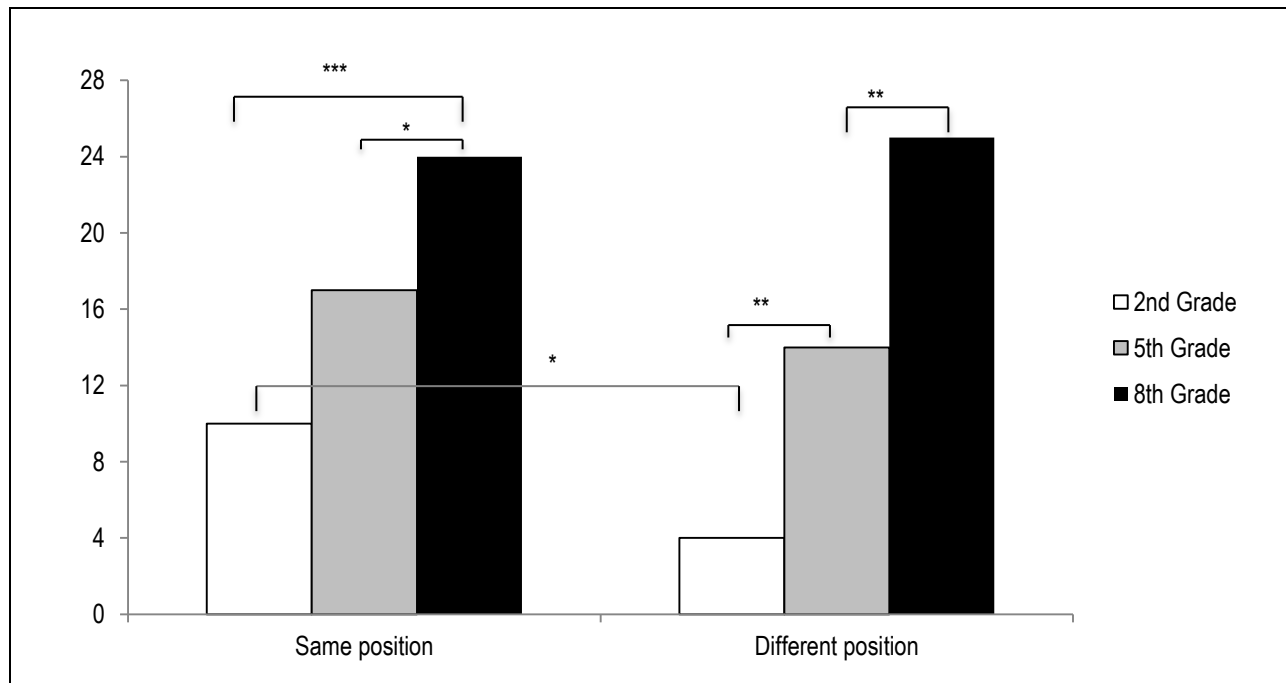


Figure 3. Correct interpretation of jokes by position of connector and disjunctive (same or different) for each grade. Numbers represent numbers of jokes interpreted correctly. Total of possible correct answers per grade is 28. Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

3.4. Types of responses (content, form, and impact)

Finally, an analysis of the types of responses given by the participants was performed. Because our interest resided in seeing the types of reflections that the participants could make on the texts (jokes and non-jokes), this analysis was completed for all the responses given by participants, independently of whether they had understood the jokes or not and whether the answers were correct or not. As stated in the method section, responses were categorized under three types: *content* (reflection on text content), *form* (reflections on text form), and *impact* (reflections on the impact of the joke on a potential recipient). Results for this analysis are shown in Figure 4.

As can be seen in Figure 4, responses for the category of content were the most frequent ones for all grades. This was expected, because the texts did not differ much in length or structure. Differences per grade were significant between second and fifth grade ($t = -4.532$, $df = 26$, $p < .000$) and between second and eighth grade ($t = -4.151$, $df = 26$, $p < .000$), although not between fifth and eighth grade. In relation to the responses of form, results showed similar tendencies (second vs. fifth: $t = -3.039$, $df = 26$, $p < .01$; second vs. eighth: $t = -3.426$, $df = 26$, $p < .01$). Finally, responses of impact did not show any significant differences by grade.

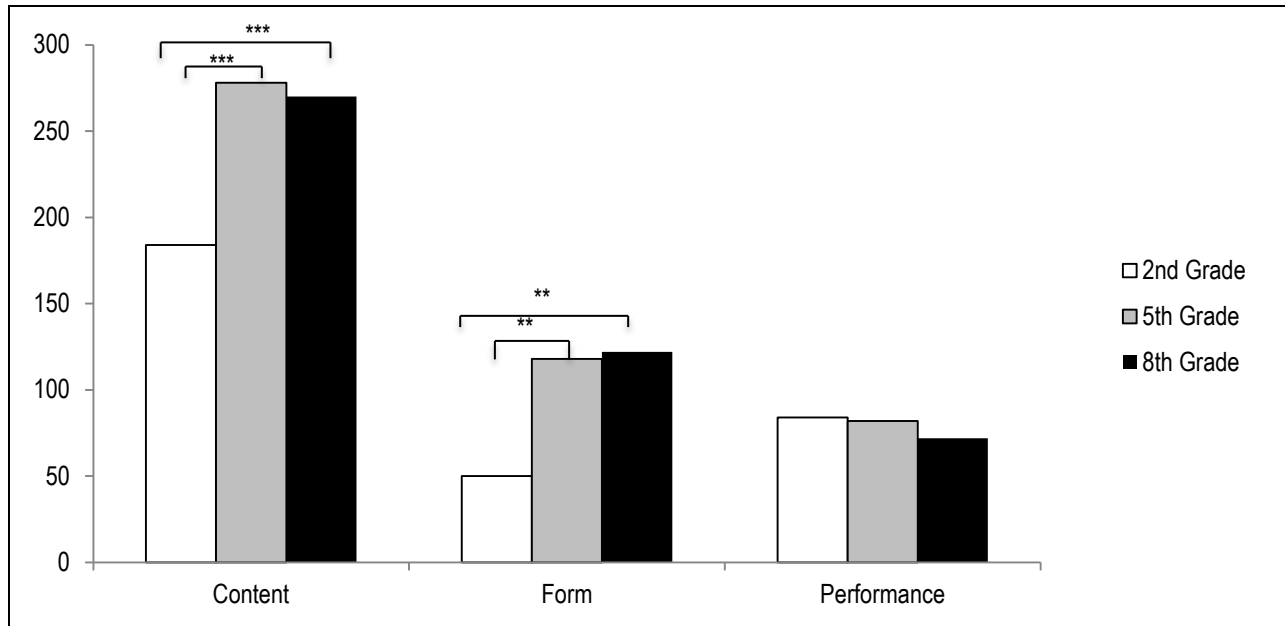


Figure 4. Total responses for the categories of content, form and impact produced by the participants per grade. Numbers include number of responses provided by participants for each category for all types of texts (jokes and non-jokes). Note: ** p < .01. *** p < .001.

In order to conduct a deeper analysis on the types of responses given by the participants, all responses included in the categories of content, form, and impact were further divided into subcategories (see Appendix B for definitions and examples of responses in each category) and statistical analyses were conducted. Results for the category of *content* are shown in Figure 5.

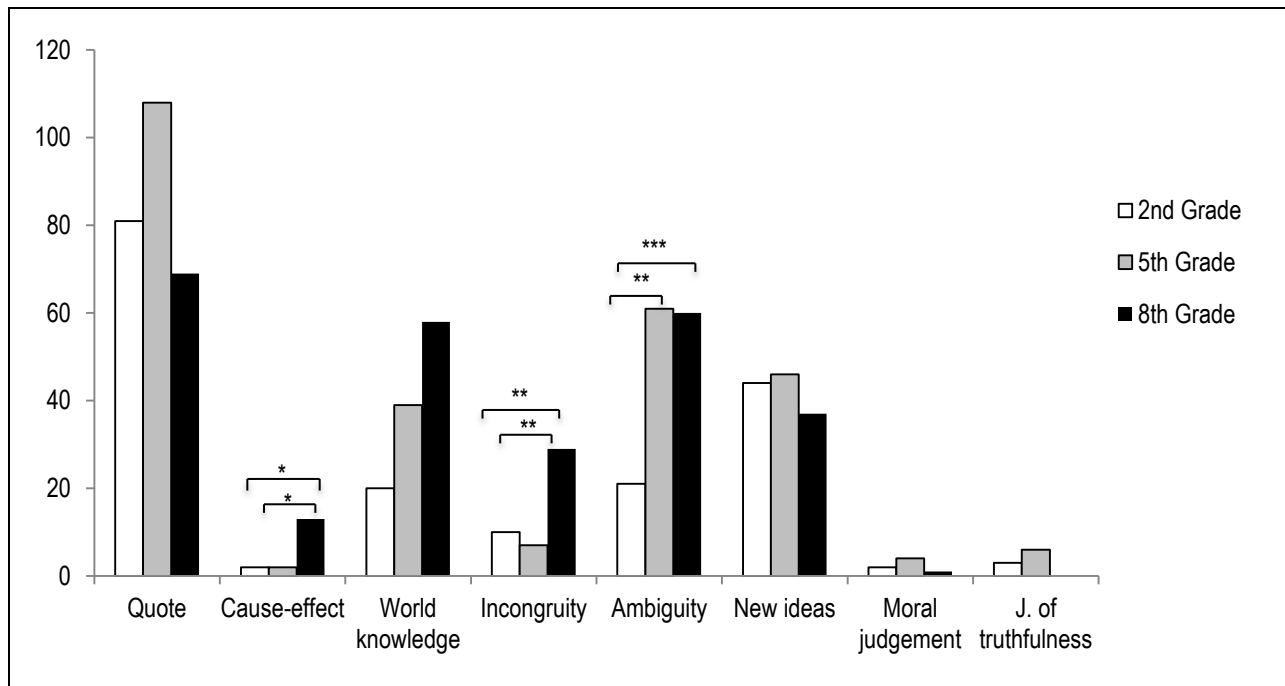


Figure 5. Total responses for the subcategories of content produced by the participants per grade. Numbers include all responses for the subcategories of content for all types of texts (jokes and non-jokes). Note: * p < .05. ** p < .01. *** p < .001.

Results in Figure 5 show differences between school grades for many of the subcategories of content. Nevertheless, these differences were statistically significant only for the following subcategories:

- a. Responses about ambiguity were more frequent in fifth and eighth grade than in second grade (fifth vs. second: $t = -3.919$, $df = 26$, $p < .01$; second vs. eighth: $t = -4.192$, $df = 26$, $p < .000$). This indicates that during the first school years children acquire the ability to observe that verbal jokes are based on structures or words that entail two readings.
- b. Participants in eighth grade produced more responses about cause-effect and incongruity than participants in fifth and second grade (cause-effect: $t = -2.228$, $df = 26$, $p < .05$; incongruity: $t = -2.978$, $df = 26$, $p < .01$). This suggests that during later childhood there is an important development in the ability to identify relationships between events and incongruity in jokes.

Results of the analysis for the subcategories of *form* are shown in Figure 6.

As Figure 6 shows, the most frequent responses were those referring to the subcategories of text structure, ambiguity, and new ideas (see Appendix B for further detail). These subcategories, as well as the subcategory of speaker's expressiveness, showed statistically significant differences by age groups in their average scores:

- a. Participants in second grade presented fewer responses about text structure than participants in fifth grade ($t = -2.954$, $df = 26$, $p < .01$) and eighth grade ($t = -2.076$, $df = 26$, $p < .05$). This indicates a growth in the ability to reflect on text structure during the first school years.
- b. Participants in second grade included fewer responses that refer to the ambiguity in verbal jokes than participants in fifth grade ($t = -3.683$, $df = 26$, $p < .01$) and eighth grade ($t = -4.192$, $df = 26$, $p < .000$). As with the case of ambiguity in the category of content, these results show a significant increase in the ability to locate two meanings in jokes at around fifth grade.
- c. Participants in eighth grade presented more responses of new ideas than participants in fifth ($t = 2.163$, $df = 26$, $p = .040$) and second grade ($t = -4.338$, $df = 26$, $p < .000$). This finding indicates that during adolescence individuals develop the ability to suggest new ideas in order to improve texts.
- d. Participants in fifth grade included more responses on the speaker's expressiveness than participants in second grade ($t = 3.358$, $df = 26$, $p < .01$). This suggests that during the early school years individuals become more conscious of the way in which language is expressed.

Finally, an analysis of the subcategories of *impact* was conducted. Results are shown in Figure 7.

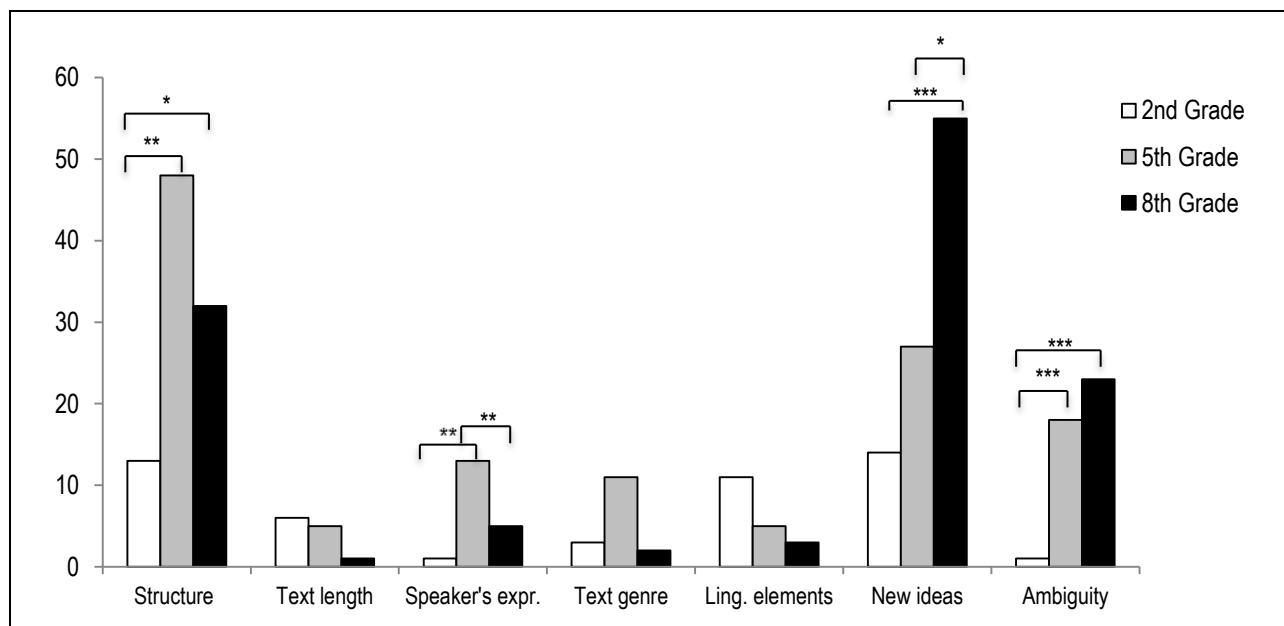


Figure 6. Total responses for the subcategories of form produced by the participants per grade. Numbers include all responses for the subcategories of form for all types of texts (jokes and non-jokes).

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

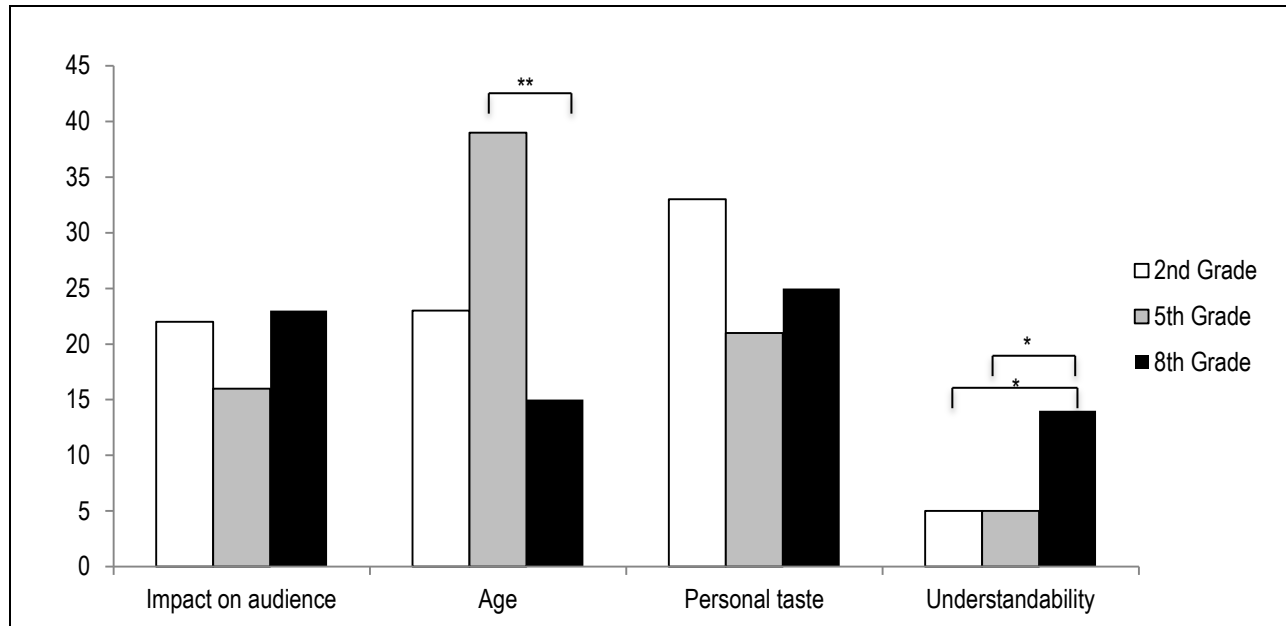


Figure 7. Total responses for the subcategories of impact produced by the participants per grade. Numbers include all responses for the subcategories of impact for all types of texts (jokes and non-jokes).

* $p < .05$. ** $p < .01$.

For the category of impact, statistical differences were found for the following subcategories:

- a. Participants in eighth grade presented more responses in reference to the understandability of the joke than participants in second grade ($t = -2.386$, $df = 26$, $p = .025$) and fifth grade ($t = -2.090$, $df = 26$, $p = .047$). This shows that the ability of taking into account the possible audience of a joke is a late acquisition milestone.
- b. Participants in fifth grade included more responses in reference to the age of a potential listener than participants in eighth grade ($t = -2.819$, $df = 26$, $p = .009$). This suggests that younger individuals center their attention more on the characteristics of a particular person who might interpret the joke, whereas older ones take into account a more general audience, as previously stated.

4. Discussion

In general terms, results show significant differences by school grade in the ability to interpret a joke as a joke and a non-joke as a non-joke, that is, to reflect on the characteristics that make a text a joke. This suggests that the ability to reflect on jokes as a text type grows significantly during the school years. As it has been shown in previous studies (see, for example, Bariaud, 1989; Falkenberg, 2010; Hess, 2014), the understanding of jokes increases when individuals develop the ability to interpret the implicit incongruity. This growth is especially important at around ages 9 to 10 (Ashkenazi & Ravid, 1998; Bariaud, 1983), as also shown by the present study, for both lexical and syntactical verbal jokes.

Additionally, as expected based on a previous study with referential jokes (Hess, 2014), results revealed an effect of age in children's increasing ability to make metalinguistic reflections on several characteristics of jokes. Data showed that even if responses on the content of jokes were the most frequent ones for all school grades, older participants displayed a larger repertoire of responses about content and form. In regard to the responses of content, our data showed that around fifth grade an important development takes place in the children's ability to establish cause-effect relationships and to locate the incongruity present in jokes. Similar findings were also reported by Bergen (2009). By fifth grade, our data showed that other significant changes take place in the responses on the form of jokes: fifth graders are better at reflecting on the structure of the text, on the speaker's expressiveness, and on the presence of an ambiguity. This indicates that by fifth grade participants are better at analyzing the joke as a text regardless of its content. This aspect was also previously documented with referential jokes (Hess, 2014) and metalinguistic reflections on narrative texts (Hess, 2010, 2011). Our results also show that some other

abilities develop between fifth and eighth grade. In particular, adolescents become able to reflect more on the understandability of the joke and less on the specific age of a potential listener, thus being able to think of a more general audience. The adolescent also becomes more capable of stating new ideas in order to make a joke a better text. This means that older individuals are more conscious of the impact that a joke may have on an audience.

In regard to responses of impact, our study showed very few in all age groups, whereas in a similar study with referential jokes, Hess (2014) reported an increase by grade in the ability to reflect on the impact that a joke may have on a potential listener. The fact that responses of impact were not common in our study with verbal jokes, but were frequent in reflections on referential jokes, indicates that the type of joke (verbal or referential) may have an impact on the types of reflections participants may produce. In the case of verbal jokes, as the ones included in this study, the impact of the joke on a potential listener was not central to the differentiation between jokes and non-jokes. Nevertheless, differences between grade groups in the subcategories of impact showed that older participants were more able to reflect on the impact that jokes may have on a more general audience and not on a particular individual in a certain context. This ability to take into account more general and abstract aspects of language during metalinguistic reflection has been documented as a major challenge of language acquisition during adolescence (Barriga, 2002; Nippold, 2007).

As for the results concerning the participants' ability to interpret different types of jokes (lexical vs. syntactical), the results showed that lexical jokes were easier to understand than syntactical jokes, a fact also documented by Bernstein (1986). This finding points to the possibility that jokes in which it is necessary to decompose and rearrange syntactical structures may be harder to understand than jokes in which there is a lexical marker to be disambiguated. This was expected, because the metasyntactical ability to reason consciously on syntactic structure and to intentionally control the application of grammatical rules is acquired during late childhood (Gombert, 1992). Additionally, literature on later language development has documented that it is easier to process particular words in a local level than to establish relationships between words in a more global level (Barriga, 2002; Calderón, 2012; Hess, 2010, 2014; Nippold, 2007). Furthermore, the results concerning the position of a connector and disjunctive in verbal jokes seem to support this finding. As this study showed, jokes that have a connector and disjunctive in the same position are easier to understand than jokes in which a connector and disjunctive are in different positions, especially for younger children (second grade). Again, locating and interpreting one salient word or structure seems to be easier than establishing connections between two or more parts of the text.

In sum, even though the small number of participants and items in this study does not allow for generalizing the results, it is possible to conclude that as children get older they seem increasingly able to reflect on jokes, to argue about them with more elements, as well as to establish relationships between different parts of the joke as a text. These data coincide with studies on later language development (Barriga, 2002; Berman, 2004; Hess, 2010, 2014; Nippold, 2007), with findings on humor development (Ashkenazy & Ravid, 1998; Bariaud, 1993, 1989; Ezell & Jarzynka, 1996; Prentice & Fathman, 1975; Shultz, 1974), and with studies on the development of irony understanding (Filippova & Astington, 2008). Overall, although the present work confirms that metalinguistic reflection on humor continues its development into adolescence, future studies with larger samples and a more complete set of stimuli should further explore the metalinguistic, linguistic, or cognitive abilities underlying the development of metalinguistic reflections on jokes. Future investigations should also consider the relationship between metalinguistic reflection and the development of a Theory of Mind and/or other linguistic abilities, as well as the variations present between individuals.

On a final note, the results of this study are also relevant for language practitioners who are using or wish to use humor in their classes. The choice of the humorous texts to be used in the classroom should be made taking into account the age of the students and the types of humorous texts they can successfully understand, while also favoring the cognitive development of the child. Jokes can also be explained to children in order to introduce them to metalinguistic reflection, for example, showing them different syntactic functions and meanings of certain parts of speech. At this end, it would be interesting to engage students in creating jokes themselves, playing with the parts of speech to stimulate their ability to use and apply metalinguistic reflection.

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Appendix A

Jokes and non-jokes presented in the study

Table A1

Jokes presented to the participants

Elements of the joke	Lexical jokes	Syntactical jokes
Connector and disjunctive in the same position	Un pececito le pregunta a otro pececito: -¿Qué hace tu papá? -Pues nada . [A little fish asks another fish: "What does your dad do?" "Well, nothing (nothing/swim)"]	Una señora entra en una tienda elegante y pregunta: -¿Tiene bolsas de cocodrilo ? -Depende, señora. Dígame, ¿ cómo le gustan a su cocodrilo ? [A woman walks into an elegant store and asks: "Do you have crocodile bags (bags made out of crocodile/for crocodiles)?" "It depends, ma'am. Tell me, how does your crocodile like them?"]
Connector and disjunctive in different position	Entra un nuevo maestro al salón y se presenta: -Buenos días, mi nombre es Largo . Interrumpe Juanito y dice: -No importa, tenemos tiempo. [A new teacher comes into the classroom and presents himself: "Good morning, my name is Long." Juanito interrupts and says: "Don't worry, we've got time."]	En una zapatería el vendedor pregunta: -¿Qué número tiene de pie ? - El mismo número de pie que de sentado . [In a shoe store the salesman asks: "What foot size/size by foot do you have?" "The same one as sitting."]

Table A2

Non-jokes presented to the participants

Non-jokes in Spanish	Non-jokes in English
Una señora le dice a otra: -¡Le pusieron lentes a mi hijo! -¡Qué mala suerte!	A woman says to another woman: "My son got glasses". "Too bad!"
Un ratoncito entra en un elevador y un señor le pregunta: -¿A qué piso va? Y el ratoncito responde: -Al tercero.	A little mouse comes into an elevator and a man asks him: "What floor?" "Third."
Dos caníbales pasean por la selva y uno le pregunta a otro: -¿Has visto a mi hermano? -No.	Two cannibals go for a walk in the jungle and one of them asks the other: "Have you seen my brother?" "No."
En un restaurant pregunta un señor: -Mesero, ¿el pescado lo sirven solo? -No, viene con arroz.	A man asks in a restaurant: "Waiter, is the fish served alone?" "No, it is served with rice".

Appendix B

Subcategories for the categories of content, form, and impact

Table B1

Categories of content responses, i.e. responses that referred to the contents of the joke (plot, events, etc.).

Subcategory	Definition and example
Quotes	The participant quoted parts of the text. Example: <i>When he said "it depends on how your crocodile likes it," I knew it was a joke.</i>
Cause and effect	Refers to the "what" or "what for" of a situation or event that occurs in the joke. Example: <i>because the woman didn't explain to the salesman why she wanted to buy the purse for her crocodile.</i>
World knowledge	Participants relate contents of the texts with their personal experience. Example: <i>When it says that she goes into an elegant shop, I imagine that she goes into a restaurant.</i>
Incongruity	Situations or events in the joke that are strange or illogical. Example: <i>I don't see what standing in the store has to do with the shoe size.</i>
Ambiguity	The participant states that some information in the text can be understood or interpreted in more than one way and explains both interpretations. Example: <i>because Juanito thinks that he is long, because his name is long instead of that his name is Long.</i>
New ideas	The participant brings new ideas to make the joke better in content. Example: <i>I would take away the parte in which they say it's bad luck to give the child glasses, because if he needs glasses to see, it's good luck.</i>
Moral judgement	The participant expresses moral judgments about the character's behavior or about the theme of the joke. Example: <i>It's a bad joke because they enter an illegal store.</i>
Judgement of truthfulness	The participant states a judgement on the falsehood or truthfulness of the events taking place in the joke. Example: <i>Crocodiles can't use purses.</i>

Table B2

Categories of form responses, responses in which participants analyzed of the text as an object, without mentioning the content.

Subcategory	Definition and example
Structure	The participant made reference to the structure of the text and mentioned textual elements: beginning, ending, questions, dialogues, narrator, etc. Example: <i>There is no coherence in the dialogue.</i>
Text length	The participant referred to how long or short the text was. Example: <i>It's short.</i>
Speaker's expressiveness	The way in which the text is narrated was referred to. Example: <i>He spoke very slowly.</i>
Text genre	The participant referred to some kind of text genre. Example: <i>it's a sarcastic joke.</i>
Linguistic elements	Linguistic elements, such as word categories, graphic symbols, letters, were mentioned. Example: <i>I know because the word has two meanings.</i>
Incongruity	Participants mentioned that there is an incongruity between the structural elements of the text. Examples: <i>because there is no congruity with the last part.</i>
New ideas	The participant brings new insights into the structural elements of the joke. Example: <i>You could include another dialogue to make it a better joke.</i>
Ambiguity	The participant states that there is an ambiguity between structural or linguistic elements of the text and explains both interpretations. Example: <i>The response has two meanings, "nada" from "swimming" and "nada" from "nothing".</i>

Table B3

Categories of impact responses, which show reflections on the impact of the text on a potential audience.

Subcategory	Definition and example
Impact of the audience	The participant referred to the impact that the text can have on the listener/reader or the impression that the joke probably leaves. Examples: <i>It is a good joke because it makes people laugh.</i>
Age	The fact that the joke is for people of a certain age is mentioned. Example: <i>It is a good joke for children because they are always saying jokes like this one.</i>
Personal taste	Participants mentioned whether he/she liked the joke or part of it or not. Example: <i>For me, it's funny because it made me laugh.</i>
Understandability	These responses refer to whether the joke is or is not understandable. Example: <i>I didn't understand it, although I imagine it has two meanings.</i>

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